PROJECT NUMBER: 0400
PROJECT TITLE: Low Density Rod Development
PROJECT LEADER: R. S. Mullins
PERIOD COVERED: October, 1987

LOW DENSITY ROD

A. **Objective**: Develop a continuous process for the production of reduced density cigarettes.

B. **Results**: Efforts this month have concentrated on starting up the Max III tipper installed on the low density rod cigarette maker. Since this tipper was obtained from the warehouse, considerable time has been required to identify and correct storage-related problems such as missing or frozen parts. In addition, several parts had to be changed to configure the tipper for production of cigarettes in the desired Marlboro Lights configuration. The softness of the low density cigarette rods also required the tipper to be adjusted to more precisely position both the filter and cigarette rods as they enter the tipper to minimize the need to "push" the rods into alignment. Thus far, the longest continuous run made on the tipper was 1/2 hour in duration during which 50 mg light cigarettes were produced at a production rate of 1000 cpm. Since the tipper now appears to be operating well mechanically, development efforts are being directed towards the tipping of cigarettes having a 25% density reduction.

The difference in firmness between conventional cigarettes containing coated (6% Genu L200) but unreactivated filler and cigarettes containing non-coated filler was found to be much greater than was predicted by the firmness model based on the CV difference of the blends. The control filler, which had a CV of 4.73 cc/g, produced a cigarette firmness of 4.1 mm. The model projected that the coated filler, which had a CV of 5.10 cc/g, would produce a cigarette firmness of 3.67 mm, an improvement of 0.43 mm. The measured firmness of the cigarettes produced with the coated filler, however, was 3.14 mm, an improvement of 0.96 mm. This result might indicate that shred stiffening is a larger contributor than previously thought to the improved firmness of bound rods produced using pectin as a binder. Additional testing is planned to determine the reason for the discrepancy.

C. **Plans**: Undertake the on-line tipping of bound cigarettes having a 25% density reduction. Identify any problems associated with tipping low density cigarettes on-line. Evaluate the effect of cut width on the properties of cigarettes produced from the all lamina blend. Investigate the CV/firmness relationship of pectin-coated filler.

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